

# The RDFIO extension

A status update

[tinyurl.com/getrdfio](http://tinyurl.com/getrdfio)

SMWCon Fall 2013

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# What is RDFIO?

- Google summer of code 2010
- Import RDF
- Query with SPARQL
- **Complete rewrite done now**

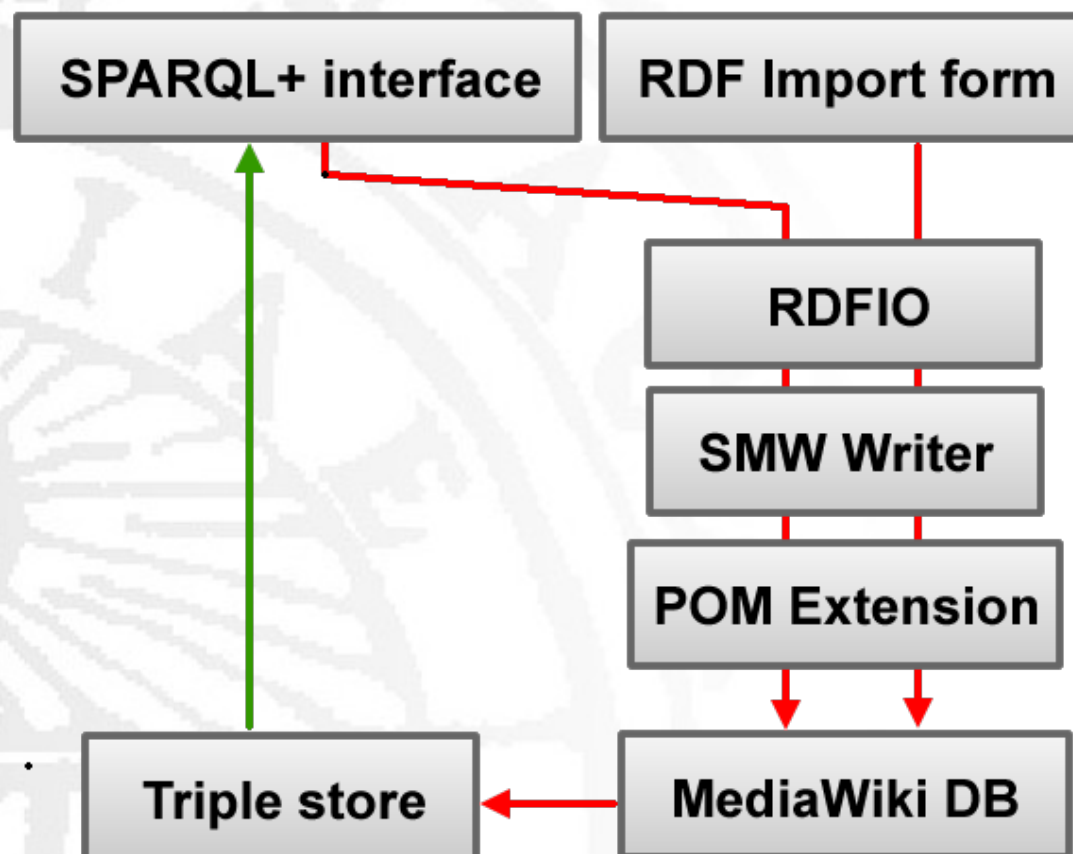


# Import

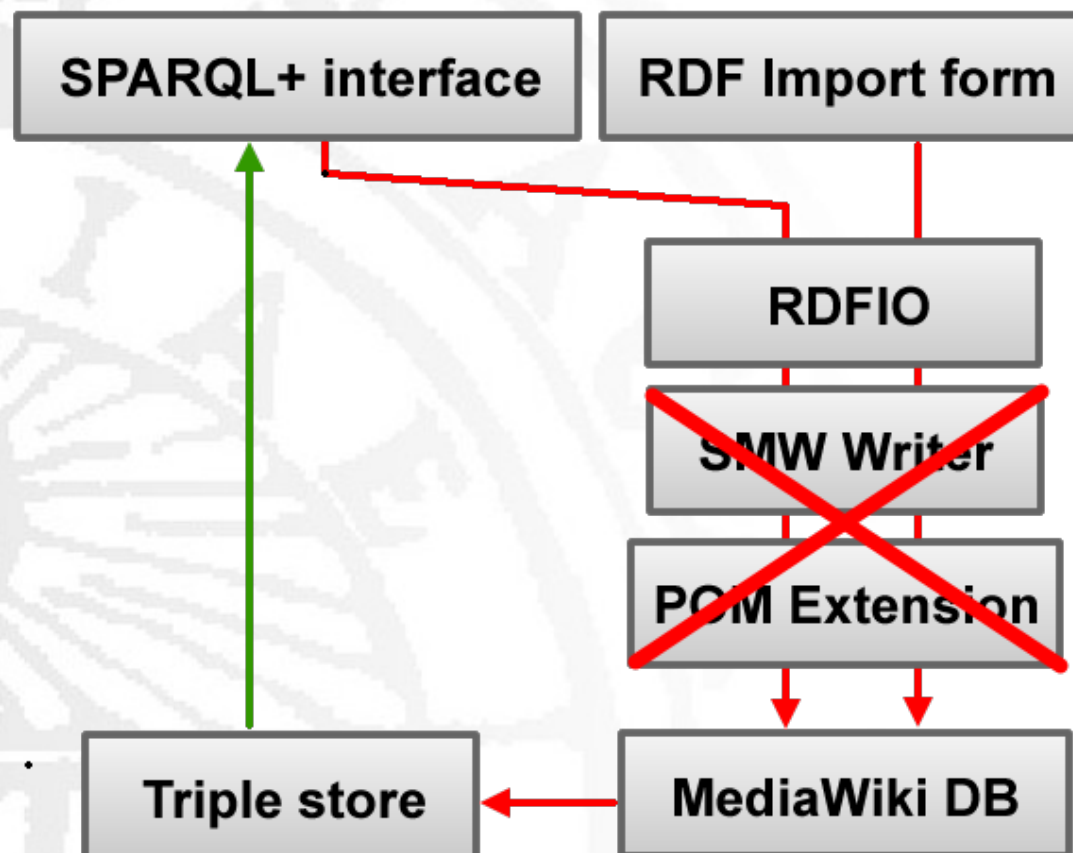
- Import RDF triples
- Write triples with SPARQL+
- Import (mirror) an external SPARQL endpoint



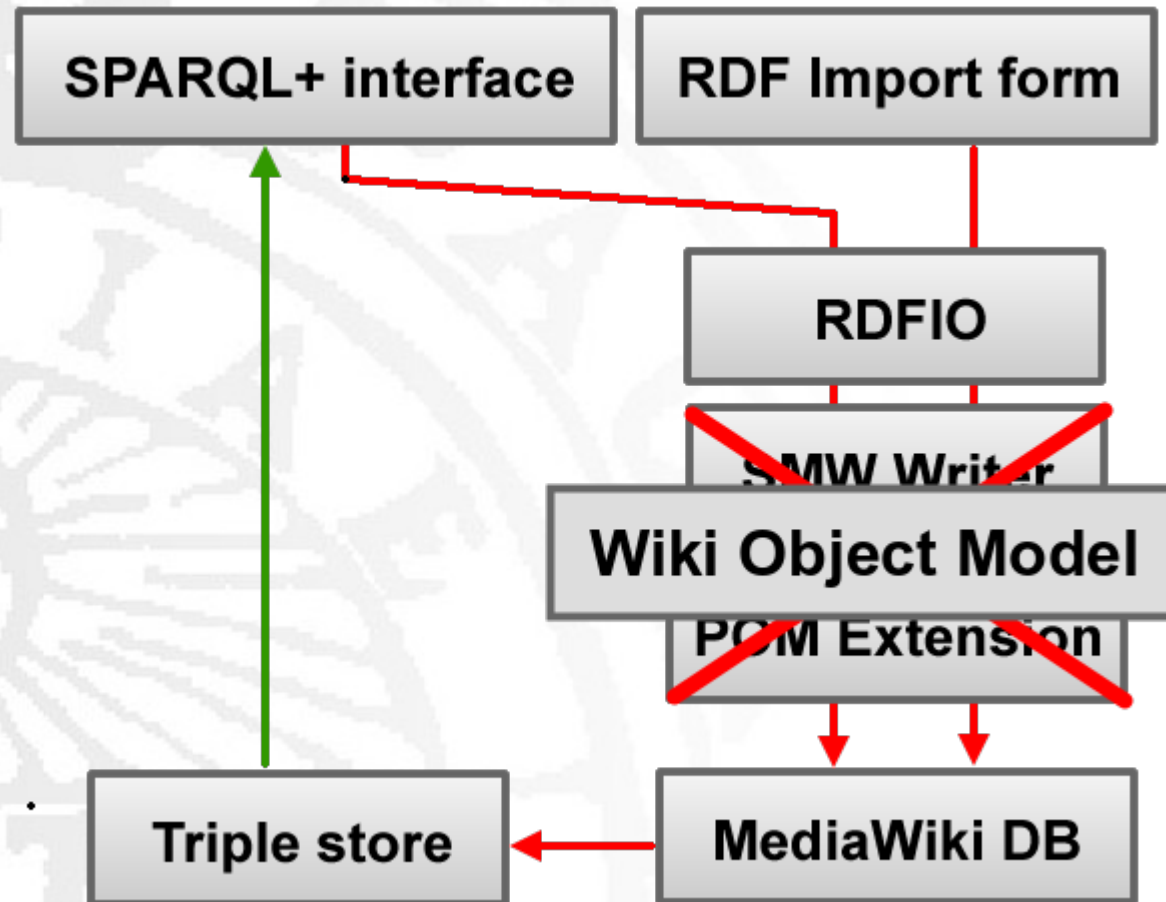
# RDFIO Architecture



# RDFIO Architecture



# RDFIO Architecture



Special page

## RDF Import

Action: ☐ Import RDF from URL, ☒ Paste RDF

Data to import:

Data format:

RDF/XML ▼

[\[Paste example data\]](#) [\[Clear\]](#)

### Navigation

[Main page](#)  
[Community portal](#)  
[Current events](#)  
[Recent changes](#)  
[Random page](#)  
[Help](#)

### Semantic Tools

[ARC2 Admin](#)  
[RDF Import](#)  
[SPARQL Endpoint](#)  
[SPARQL Import](#)



Special page

Search

Go

Search

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Show last [50](#) | [100](#) | [250](#) | [500](#) changes in last [1](#) | [3](#) | [7](#) | [14](#) | [30](#) days

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Namespace:

all



Invert selection



Associated namespace

Go

### 30 October 2013

- (diff | hist) . . N **Category:**Countries:MediaCollections; 09:32 . . (+67) . . [Admin](#) ([Talk](#) | [contribs](#) | [block](#)) (*Update by RDFIO*)
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- (diff | hist) . . N Hide your heart; 09:32 . . (+175) . . [Admin](#) ([Talk](#) | [contribs](#) | [block](#)) (*Update by RDFIO*)
- (diff | hist) . . N **Property:**Cd:year; 09:32 . . (+52) . . [Admin](#) ([Talk](#) | [contribs](#) | [block](#)) (*Update by RDFIO*)
- (diff | hist) . . N **Property:**Cd:price; 09:32 . . (+53) . . [Admin](#) ([Talk](#) | [contribs](#) | [block](#)) (*Update by RDFIO*)
- (diff | hist) . . N **Property:**Cd:company; 09:32 . . (+55) . . [Admin](#) ([Talk](#) | [contribs](#) | [block](#)) (*Update by RDFIO*)
- (diff | hist) . . N **Property:**Cd:country; 09:32 . . (+55) . . [Admin](#) ([Talk](#) | [contribs](#) | [block](#)) (*Update by RDFIO*)
- (diff | hist) . . N Countries:USA; 09:32 . . (+74) . . [Admin](#) ([Talk](#) | [contribs](#) | [block](#)) (*Update by RDFIO*)
- (diff | hist) . . N **Property:**Cd:artist; 09:32 . . (+54) . . [Admin](#) ([Talk](#) | [contribs](#) | [block](#)) (*Update by RDFIO*)
- (diff | hist) . . N Empire Burlesque; 09:32 . . (+182) . . [Admin](#) ([Talk](#) | [contribs](#) | [block](#)) (*Update by RDFIO*)



Special page

Search

Go

Search

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Track the most recent changes to the wiki on this page.

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Show last [50](#) | [100](#) | [250](#) | [500](#) changes in last [1](#) | [3](#) | [7](#) | [14](#) | [30](#) days

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Go

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Page **Discussion**

[Read](#) [Edit](#) [View history](#)


Go


Search

# Empire Burlesque

[http://www.recshop.fake/cd/Empire Burlesque](http://www.recshop.fake/cd/Empire_Burlesque) [Bob Dylan](#) [Countries:USA](#) [Columbia](#) [10.90](#) [1985](#)

## Facts about "Empire Burlesque"

[RDF feed](#) 

[Cd:artist](#) [Bob Dylan](#) + 

[Cd:company](#) [Columbia](#) + 

[Cd:country](#) [Countries:USA](#) + 

[Cd:price](#) [10.90](#) + 

[Cd:year](#) [1985](#) + 

**Equivalent URI** <http://www.recshop.fake/cd/Empire%20Burlesque> + 

### Navigation

[Main page](#)  
[Community portal](#)  
[Current events](#)  
[Recent changes](#)  
[Random page](#)  
[Help](#)

### Semantic Tools

[ARC2 Admin](#)  
[RDF Import](#)  
[SPARQL Endpoint](#)  
[SPARQL Import](#)

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Page **Discussion**

[Read](#) [Edit](#) [View history](#)


Go

Search

# Empire Burlesque

[http://www.recshop.fake/cd/Empire Burlesque](http://www.recshop.fake/cd/Empire_Burlesque) [Bob Dylan](#) Countries:USA Columbia 10.90 1985

## Facts about "Empire Burlesque"

[RDF feed](#) 

Cd:artist [Bob Dylan](#) + 

Cd:company [Columbia](#) + 

Cd:country [Countries:USA](#) + 

Cd:price [10.90](#) + 

Cd:year [1985](#) + 

**Equivalent URI** <http://www.recshop.fake/cd/Empire%20Burlesque> + 

### Navigation

[Main page](#)  
[Community portal](#)  
[Current events](#)  
[Recent changes](#)  
[Random page](#)  
[Help](#)

### Semantic Tools

[ARC2 Admin](#)  
[RDF Import](#)  
[SPARQL Endpoint](#)  
[SPARQL Import](#)

This page was last modified on 23 October 2013, at 13:38.

This page has been accessed 3 times.

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Property **Discussion**

Read Edit View history

Go

Search

# Property:Cd:country

<http://www.recshop.fake/cd#country>

## Pages using the property "Cd:country"

Showing 2 pages using this property.

### E

[Empire Burlesque](#) + 
[Countries:USA](#) + 

### H

[Hide your heart](#) + 
[UK](#) + 

### Facts about "Cd:country"

RDF feed

*Equivalent URI*
<http://www.recshop.fake/cd#country> + 

#### Navigation

[Main page](#)  
[Community portal](#)  
[Current events](#)  
[Recent changes](#)  
[Random page](#)  
[Help](#)

#### Semantic Tools

[ARC2 Admin](#)  
[RDF Import](#)  
[SPARQL Endpoint](#)  
[SPARQL Import](#)

#### Toolbox

[What links here](#)  
[Related changes](#)  
[Special pages](#)

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[Privacy policy](#)
[About SMW](#)
[Disclaimers](#)

Special page

Go

Search

# SPARQL Endpoint

Enter SPARQL query:

```
@PREFIX w : <Special:URIResolver/> .
```

```
SELECT *  
WHERE { ?s ?p ?o }  
LIMIT 25
```

Query by Equivalent URIs: ☐Output Equivalent URIs: ☐

Output Equivalent

Output format: **HTML** ▼(RDF/XML requires creating triples using [CONSTRUCT](#))

## Navigation

[Main page](#)  
[Community portal](#)  
[Current events](#)  
[Recent changes](#)  
[Random page](#)  
[Help](#)

## Semantic Tools

[ARC2 Admin](#)  
[RDF Import](#)  
[SPARQL Endpoint](#)  
[SPARQL Import](#)

## Toolbox

## Special pages

[Privacy policy](#) [About SMW](#) [Disclaimers](#)



Special page

## SPARQL Endpoint

Enter SPARQL query:

```
@PREFIX w : <http://localhost/smw/index.php/Special:URIResolver/> .
```

```
SELECT *  
WHERE { w:Empire Burlesque ?p ?o }  
LIMIT 25
```

Query by Equivalent URIs: ☐Output Equivalent URIs: ☐

Output Equivalent

Output format: **HTML**(RDF/XML requires creating triples using [CONSTRUCT](#))

### Result:

p	o
<a href="http://www.w3.org/1999/02/22-rdf-syntax-ns#type">http://www.w3.org/1999/02/22-rdf-syntax-ns#type</a>	<a href="http://semantic-mediawiki.org/swivt/1.0#Subject">http://semantic-mediawiki.org/swivt/1.0#Subject</a>
<a href="http://www.w3.org/2000/01/rdf-schema#label">http://www.w3.org/2000/01/rdf-schema#label</a>	Empire Burlesque
<a href="http://semantic-mediawiki.org/swivt/1.0#page">http://semantic-mediawiki.org/swivt/1.0#page</a>	<a href="http://localhost/smw/index.php/Empire_Burlesque">http://localhost/smw/index.php/Empire_Burlesque</a>

#### Navigation

[Main page](#)  
[Community portal](#)  
[Current events](#)  
[Recent changes](#)  
[Random page](#)  
[Help](#)

#### Semantic Tools

[ARC2 Admin](#)  
[RDF Import](#)  
[SPARQL Endpoint](#)  
[SPARQL Import](#)

#### Toolbox

[Special pages](#)



Special page

Search

Go

Search

## SPARQL Endpoint

Enter SPARQL query:

```
@PREFIX w : <http://localhost/smw/index.php/Special:URIResolver/> .  
  
SELECT *  
WHERE { <http://www.recshop.fake/cd/Empire%20Burlesque> ?p ?o }  
LIMIT 25
```

Query by Equivalent URIs: ☒

Output Equivalent URIs: ☐

Output Equivalent

Output format: HTML

(RDF/XML requires creating triples using [CONSTRUCT](#))

Submit

### Result:

p	o
http://www.w3.org/1999/02/22-rdf-syntax-ns#type	http://semantic-mediawiki.org/swivt/1.0#Subject
http://www.w3.org/2000/01/rdf-schema#label	Empire Burlesque
http://semantic-mediawiki.org/swivt/1.0#page	http://localhost/smw/index.php/Empire_Burlesque

SPARQL Import - SMW x

localhost/smw/index.php/Special:SPARQLImport

Tutorial: Introduc... Unit Testing Tuto... Eclipse, PHPUnit, ... Manual:PHP unit ...

[Admin](#) [Talk](#) [Preferences](#) [Watchlist](#) [Contributions](#) [Log out](#)

Special page

## SPARQL Import



URL of SPARQL endpoint:

Example: <http://www.semantic-systems-biology.org/biogateway/endpoint>

Navigation

- [Main page](#)
- [Community portal](#)
- [Current events](#)
- [Recent changes](#)
- [Random page](#)
- [Help](#)

[Privacy policy](#) [About SMW](#) [Disclaimers](#)

*“Poormans SPARQL endpoint mirroring”*



Special page

## SPARQL Import

URL of SPARQL endpoint:

*Example: http://www.semantic-systems-biology.org/biogateway/endpoint*

### Success!

Successfully imported the triples shown below!

Subject	Predicate	Object
http://www.openlinksw.com/virtrdf-data-formats#default-iid	http://www.w3.org/1999/02/22-rdf-syntax-ns#type	http://www.openlinksw.com/schemas/virtrdf#QuadMapFormat
http://www.openlinksw.com/virtrdf-data-formats#default-iid-nullable	http://www.w3.org/1999/02/22-rdf-syntax-ns#type	http://www.openlinksw.com/schemas/virtrdf#QuadMapFormat
http://www.openlinksw.com/virtrdf-data-formats#default-iid-nonblank	http://www.w3.org/1999/02/22-rdf-syntax-ns#type	http://www.openlinksw.com/schemas/virtrdf#QuadMapFormat

#### Navigation

[Main page](#)  
[Community portal](#)  
[Current events](#)  
[Recent changes](#)  
[Random page](#)  
[Help](#)

#### Semantic Tools

[ARC2 Admin](#)  
[RDF Import](#)  
[SPARQL Endpoint](#)  
[SPARQL Import](#)

#### Toolbox



Bioclipse

Bioclipse Navigator

BOdata

Structure Repos

amides  
amines  
amino\_acids  
aromatics  
carbamides  
carbohydrates  
carboxylic\_acids  
drugs  
4-acetamidophenyl\_2-hydro  
acepromazine.mol  
D-amphetamine.mol  
D-amphetamine.smi  
diazepam.mol  
diazepam.smi  
N-4-hydroxyphenyl\_acetami  
esters  
ethers  
fatty\_acids  
haloalkanes  
heteroaromatics  
images  
ketones  
macrocycles  
nitriles  
nitroalkanes  
nucleobases  
polycyclic\_alkanes  
polycyclic\_aromatics  
sulfones

1LOU.pdb diazepam.mol

Outline

- C1
- C2
- C3
- C4
- C5
- C6
- C7
- N8
- C9
- C10
- N11
- C12
- C13
- C14
- O15
- C16
- C17

Properties

BOdata/Blue Obe...gs/diazepam.mol

Property	Value
derived	false
editable	true
last modified	February 13, 200
linked	false
location	/Users/ola/Libra
name	diazepam.mol
path	/BOdata/Blue Obe
size	2,419 bytes

JavaScript Console

```

org.mozilla.javascript.Undefined@dee89b
fromCml fromSMILES fromString

> mol=cdk.fromSMILES("C1CCCCC1CCOCCO")
CDKMolecule:C10H20O2

> cdk.calculateMass(mol)
152.10616882301883
  
```

BOdata/Blue Obelisk Chemical Structure Repository/drugs/diazepam.mol



# Talk to SMW from Bioclipse

```
var wikiURL = "http://drugmet.rilspace.org/wiki/";

/* Editing SMW facts */

smw.addTriple("w:Caffeine", "w:is_a", "w:Molecule", wikiURL);
smw.removeTriple("w:Caffeine", "w:is_a", "w:Molecule", wikiURL);

/* Downloading RDF for local querying */

rdfStore = rdf.createInMemoryStore();
rdfStore = smw.getRDF( wikiURL );
result = rdf.sparql( rdfStore,
    "SELECT DISTINCT ?pred WHERE { ?subj ?pred ?obj } LIMIT 10"
);

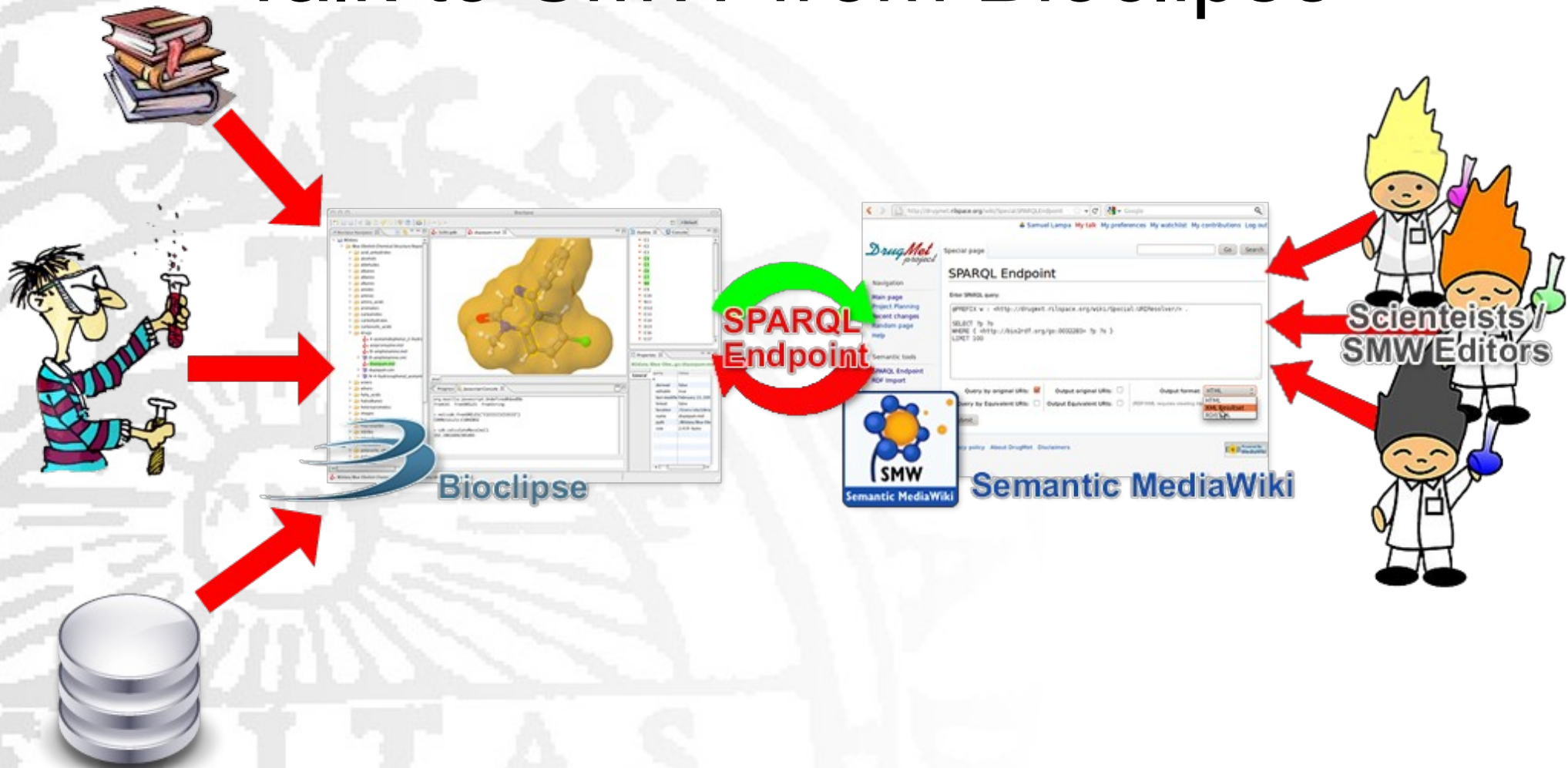
/* Show some output */

js.print( result );
```

→ [bioclipse.net](http://bioclipse.net)



# Talk to SMW from Bioclipse





# Pulling data from R

## Credits: @EgonWillighagen

```
library(rrdf)

endpoint =
"http://127.0.0.1/mediawiki/index.php/Special:SPARQLEndpoint"

query = paste("PREFIX w: ",
"SELECT ?min ?max ?zeta WHERE ",
"{ ?inst a w:Category-3AMetalOxides . ",
"  OPTIONAL { ?inst w:Property-3AHas_Size_Min ?min . }",
"  OPTIONAL { ?inst w:Property-3AHas_Size_Max ?max . }",
"  OPTIONAL { ?inst w:Property-3AHas_Zeta_potential ?",
"zeta . }",
"}"
);
```



# Next steps for RDFIO

- Editing via templates
- Import triples per “page” (Idea: Varun Ratnakar)
- *Your idea here ...*



# Thanks!

[tinyurl.com/getrdfio](https://tinyurl.com/getrdfio)

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